REMARKS

Rejection under 35 U.S.C. §103(a) over Groten et al. in view of Allen and Buehning

Claims 1, 3-5, and 8-10 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent no. 6,402,870 to Groten et al., in view of U.S. Patent no. 6,182,732 to Allen and U.S. Patent no. 4,889,476 to Buehning. Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

Groten et al. and Buehning have been discussed at length in Applicants' previous responses and Applicants reiterate their comments in traverse of the application of those references.

Groten et al. Represents Non-Analogous Art as to the Present Claims and to Buehning

Applicants submit that Groten et al., which is directed to a die for a spunbonding process, represents non-analogous art, both as to the present claims and as to Buehning, both directed to apparatuses and processes for melt blowing, and is therefore improperly combined with Buehning in rejecting the present claims.

The patent law requires that a reference used in a rejection either be (1) in the field of applicant's endeavor, or (2) be reasonably pertinent to the problem with which the inventor was concerned.

> In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

In the outstanding Office Action (mailed 13 February 2004), the Examiner concedes to the distinction between the spunbonding process of Groten et al. and the meltblowing process of Buehning, but attempts to demonstrate the propriety of the combination of spunbonding and melt blowing art by the addition of the Allen reference.

> While Groten et al. is directed to spunbond fibers, one in the art would appreciate that when fabrics having fibers with the characteristics of Groten et al. which are soft with good hand were desired a melt-blown web rather than a spunbond web would be desirable (Allen et al., Col. 1, ll. 56-61). (Office Action, page 2).

Allen discloses a multi-station line for forming nonwoven laminates comprising at least one spunbond die assembly and at least one melt blowing die assembly (Abstract). The multi-station line is configured such that any 'station' can accept either a spunbonding die or a melt blowing die, to facilitate formation of nonwoven laminates having various combinations of spunbond and melt blown layers (col. 2, lines 28-39).

In order to assess whether the combination of Groten et al. and Buehning is proper, one must look to the test set forth in Oetiker. Applicants submit that even Allen recognizes the clear distinction in the art between spunbonding and melt blowing processes. Allen discloses that

> [s]punbonded webs generally have large average diameter [fibers]...which are heavier and stiffer then [*sic*] meltblown fibers...(col. 1, lines 44-48),

in contrast to melt-blown fabrics, which

> ...are characterized as soft, porous with good hand, but are deficient in strength properties...(col. 1, lines 56-57).

Allen further discloses that it is known in the art to laminate melt blown fabrics to spunbond fabrics in order to combine the properties of both into a single structure (col. 1, lines 62-66). Allen never discloses or suggests that a spunbond fabric could be modified in the manner of a melt blown fabric to achieve properties which would avoid the necessity of laminating the two.

Likewise, Allen discloses that spunbond and melt-blown webs must be formed using entirely different melt spinning dies (to be discussed in more detail *infra*), further supporting the proposition that these materials are distinct in the art and thus non-analgous. Accordingly, Applicants submit that the teachings of Groten et al., which are directed to spunbonding dies, are completely irrelevant to both the present claims and to Buehning, and thus Groten et al. fails to meet the first prong of the Oetiker test.

The second prong of the Oetiker test requires that the cited reference "be reasonably pertinent to the problem with which the inventor was concerned". Applicants submit that a thorough reading of both the present application and the Groten et al. reference cannot support such a finding.

In the present application, Applicants discuss problems which are encountered in prior art bicomponent melt blowing processes. One problem is that during melt

processing, some of the melt degrades and forms particles large enough to plug some of the spinning orifices (paragraph 0005). Another problem relates to the differential flow of polymers having different melt viscosities through the melt spinning die, which can result in undesired mixing of polymers and/or spinning problems due to a mismatch in the speed of the two different melts exiting the spinning die (paragraph 0006). The present invention addresses these problems by (1) using separate coat hangar distribution manifolds for each polymer to minimize heating gradients within the spin beam and reduce non-uniform heating of each polymer, and to achieve nearly identical residence time for all molten polymer within the distribution manifolds (paragraphs 0020 and 0021), (2) separately filtering the planar molten polymer flow streams downstream of the coat hangar distribution manifolds to remove unwanted particulate from the molten polymer flow streams which might plug spinneret exit orifices (paragraph 0022), and (3) separately extruding the different polymers through separate spinneret exit orifices, subsequently combining and attenuating the extruded polymer filaments to avoid mixing of the planar molten polymer flow streams within the spinning die itself (paragraphs 0022 and 0023).

In contrast, Groten et al. fails to address any of Applicants' stated problems. Instead, Groten et al. is directed to modification of spunbonding processes and dies in order to

> ...achieve complex external [fiber] cross-sections having clear outlines such as edges and notches...[which do not] fade during this known co-extrusion manufacturing process. (Col. 1, lines 53-58).

Groten et al. fail to disclose or suggest any benefit associated with the use of separate coat hangar manifolds for each polymer in combination with filtering planar molten polymer flow streams downstream of said coat hangar manifolds to reduce plugging of spinning orifices and undesired mixing of polymers, according to the present invention. The only suggestion of such advantages is provided by the Examiner, which is clearly obtained by a reading of the present application, and therefore represents an impermissible hindsight reconstruction of the present invention.

Since Groten et al. is directed to a non-analogous process as compared to the present claims, and since Groten et al. is not concerned with a problem "reasonably pertinent to the problem" solved by the present application, the skilled artisan would have no reason to look to Groten et al., either to modify Buehning or for motivation to address the problems set forth in the present application. The Examiner's application of the Groten et al. disclosure to the present claims violates the two prong test of

Oetiker, and is therefore improper. Withdrawal of the rejection is requested on this basis alone.

Proposed Modification Would Destroy the Groten et al. Reference

Attention is further directed to the intended end use of the fibers/fabrics of Groten et al., which are for "reinforcement material for shoes" (col. 6, lines 66-67). This is hardly an intended use for which the skilled artisan would desire a fabric which is "soft...with good hand", as disclosed by Allen. Additionally, modification of the Groten et al. fibers/materials to be melt-blown would result in fabrics which are "deficient in strength properties, such as tensile strength and are not very wear resistant" (Allen, col. 1, lines 56-60), thus destroying the object of the Groten et al. reference, i.e. a fabric for use as a "reinforcement material for shoes".

> If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). MPEP 2143.01

Withdrawal of the rejection is requested on this basis.

Combination of References Does Not Fairly Suggest the Presently Claimed Invention

According to the patent law, in order to establish a *prima facie* case of obviousness, the combination of references must (1) supply some suggestion or motivation to the skilled artisan to modify or combine the reference teachings, (2) provide a reasonable expectation of success in such combination, and (3) teach or suggest each and every limitation of the claims.

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. MPEP § 2142, citing In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Likewise, in making an obviousness rejection, the Examiner must consider the references as a whole, and not merely pick and choose only that information which supports the rejection.

> It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. In re Wesslau, 147 USPQ 391, 393 (CCPA 1965).

In the present rejection, the Examiner has suggested that the Allen disclosure would provide motivation to the skilled artisan to modify Groten et al. in the manner of Buehning.

> While Groten et al. is directed to spunbond fibers, one in the art would appreciate that when fabrics having fibers with the characteristics of Groten et al. which are soft with good hand were desired a melt-blown web rather than a spunbond web would be desirable (Allen et al., Col. 1, ll. 56-61). Allen et al. shows how a spunbond apparatus can be changed into a melt-blown apparatus *simply by exchanging one die element* (Col. 2, ll. 29-36; Figure 4-8). (Office Action, page 2; emphasis added).

Applicants respectfully submit that the Examiner's characterization of the Allen teachings is incorrect and an unwarranted simplification of those teachings made to support the rejection, rather than a conclusion which could be reached by the skilled artisan.

Allen does not disclose merely "exchanging one die element" to convert from spunbonding to melt-blowing, but instead discloses interchangeability of entire dies (col. 2, lines 28-32) between the individual melt spinning stations of the multi-station spinning line (col. 2, lines 33-39). Thus, a spunbonding die is not modified to become a melt-blowing die by some simple modification of a single element, as suggested by the Examiner: the spunbonding dies and the melt-blowing dies are individually configured to separately produce either a spunbond layer or a melt-blown layer, which layers are combined and laminated to produce a fabric having the beneficial properties of both layers (col. 1, lines 62-66). Again, Applicants submit that Allen recognizes the separate status in the art of melt-blowing and spunbonding, as evidenced by his recitation of the differing properties of fabrics made by those techniques.

Even Allen recognizes the great differences between the spunbonding and melt-blowing dies, disclosing

> [b]ecause of the *complexity of the structures* embodied in the present invention, the invention will be described first, and with general reference, to the three station in-line assembly (Fig. 1), followed by the description of the various components thereof, including the melt spinning assembly, *the meltblowing die insert*, [and] *the spunbond die insert*...(col. 3, lines 20-26; emphasis added).

Careful consideration of the differences between the melt-blowing dies (Fig. 7) and the spunbonding dies (Fig. 8) of Allen is revealing. Both Figs. 7 and 8 represent transverse cross-sections of the relevant dies (col. 2, lines 63-67). One major difference between the two are the air passages (103, 118, 124 and 121) present in the melt-blowing die (Fig. 7; col. 6, generally), which are entirely absent in the spunbonding die (Fig. 8; cols. 6-7). Likewise, the polymer flow channel (117) of the melt-blowing die is configured entirely differently from that of the spunbonding die (136). Finally, the spin orifices (116) of the melt-blowing die are arranged in a single line along the axis of the die, whereas the spin orifices (138) of the spunbonding die are arranged in a grid (Fig. 9; col. 7, lines 14-18).

Thus, it is clear that modification of an Allen spunbonding die to make a melt-blowing die is not merely a matter of "exchanging one die element" as proposed by the Examiner. Instead, to achieve the present invention, one would have to (1) modify the Groten et al. die plate from a cylindrical design, as disclosed, to be a longitudinal beam die plate, as disclosed by Allen and Buehning; (2) modify the grid pattern of spinning orifices described by Allen to be a single line of spinning orifices; (3) provide air passages throughout the die assembly and extending through the die plate to accomplish melt-blowing; (4) modify the Allen die bodies (Fig. 6; 61; col. 5, lines 27-30) to incorporate separate and multiple coat hangar distribution manifolds for multiple polymers; (5) modify the Allen die bodies to incorporate separate and multiple polymer supply lines; (6) decide not to merge the planar molten polymer flow streams exiting those coat hangar manifolds within the die body itself; and (7) include filters extending longitudinally the length of each coat hangar manifold downstream thereof, which would then feed the line of melt-blowing orifices, as in Buehning.

Applicants respectfully submit that neither the references, when considered as a whole, nor the state of the art known to the skilled artisan would fairly be considered to provide motivation to make so many modifications of the various structures and processes disclosed in the references. The Examiner's proposal to the contrary is merely an impermissible hindsight reconstruction of the presently

claimed invention, derived from a reading of the present specification and claims, combined with an impermissible parsing of the reference teachings, and is completely unsupported by either the prior art or the skill in the art. Again,

> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. MPEP § 2142, citing In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Withdrawal of the rejection for failure to establish a *prima facie* case of obviousness as to the present claims is requested.

Response to Examiner's Interview Summary

Regarding the Examiner's question regarding basis for the concept that "the polymer remain planar after exiting the filter" (Office Action, page 3), the Examiner's attention is directed to paragraphs [0022] and [0023 of the specification.]

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,

THOMAS W. STEINBERG
ATTORNEY FOR APPLICANTS
Registration No.: 37,013
Telephone: (302) 892-0887
Facsimile: (302) 892-7343

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